

The ISO received comments on the CAISO preliminary reliability results and PTO's proposed mitigation solutions stakeholder meeting held on September 24-25, 2014 from the following:

1. Alameda Municipal Power (AMP)
2. Bay Area Municipal Transmission group (BAMx)
3. California Energy Storage Alliance (CESA)
4. California Public Utilities Commissions (CPUC)
5. LS Power Development (LS Power)
6. Pacific Gas & Electric (PG&E)
7. Silicon Valley Power (SVP)
8. Transmission Agency of Northern California (TANC)

Copies of the comments submitted are located on the *2014-2015 Transmission planning process* page at: <http://www.caiso.com/planning/Pages/TransmissionPlanning/2014-2015TransmissionPlanningProcess.aspx> under the *Phase 2* heading.

The following are the ISO's responses to the comments.

No	Comment Submitted	CAISO Response
1	Alameda Municipal Power (AMP) Submitted by: Barry Flynn and Lindsay Battenberg	
1a	Oakland and Alameda CTs <p>The CAISO presented two scenarios in the Reliability Assessment for the Oakland combustion turbines (CTs), one case with two units online and a second case with all three units retired/shutdown. The performance of the 115 kV system in the East Bay is dramatically different in the two cases, with many new deficiencies identified without the Oakland CTs. The depth of the issue is being somewhat masked by the modeling of the NCPA Alameda CTs at full operation. Given the limited hours of allowed operation and the restriction to only call upon the Alameda CTs in a system emergency, we recommend any reliance on these CTs in Alameda to be for only very short durations and supported by analysis of the expected hours of operation. For example, reliance on these units to mitigate a normal overload or an overload resulting from a single initiating event would likely lead to excessive operations as they would need to be operated in advance of the event to avoid a SOL violation. Furthermore, the local system must maintain sufficient operational flexibility to accommodate maintenance outages without resulting in excessive use of the CTs.</p> <p>Given that the system performance is so dramatically different between the two base conditions, it is important to understand which is the base case that will be used in system planning. The power system models posted on the website have the Oakland CTs shutdown. At the stakeholder meeting it was identified that the reason for this modeling assumption was the directive in the CPUC LTPP to not rely on generating units greater than 40 years old in developing long-term reliability plans. However, it was also identified in the stakeholder meeting that the CAISO usually waits until there is an announcement by the owner concerning retirement before assuming a retirement. Therefore, it is unclear what the planning assumption is made for the Oakland CTs. Given their importance to reliability and also that they are the only remaining RMR units (aside from the Huntington Beach synchronous condensers), BAMx recommends the development of a transmission plan that supports the eventual operation of the system without these units. Once such a plan is understood, the timing of the plan along with the future reliance on these generators can be</p>	<p>The Oakland generation was not modeled in the base case as identified in the study plan which was based upon the assumptions of the CPUC LTPP to assume retirement of generators of this fuel type older than 40 years. The CAISO has modeled as such to assess the potential impacts if the generation retires; however the CAISO has not received formal retirement notice for this generation or repowering for this site. The ISO will continue to monitor the needs in the area. The Alameda CTs are modeled on-line and are expected to operate at peak load conditions. The ISO is conducting long term LCR studies as a part of the 2014-2015 TPP and will continue to monitor the needs of the area in future planning cycles.</p>

No	Comment Submitted	CAISO Response
	better understood.	
1b	<p>Modeling of Russell City Contingencies Though the issue was commented upon in the 2013-2014 TPP, Russell City continues to be modeled in the contingency analysis as separate outages of each of the three generating units. As this is a combined cycle power plant, the CAISO Planning Standards require that the loss of all the units be considered as a G-1. Revision of the modeling results in increased contingency flows and reliability deficiencies between Moraga and San Leandro Station U even after the completion of the <i>East Shore-Oakland J Reconductoring Project</i>. BAMx requests that the modeling of Russell City contingencies be corrected and the assessment results be updated in the Final Assessment.</p>	<p>Russell City is a combined cycle plant as indicated and we will update the results accordingly in the transmission plan.</p>
1c	<p>Need to Develop a Long-Term Plan for the East Bay In addition to the above concerns about both the northern and southern portions of the Oakland 115 kV system, there are Special Protection Schemes at both Station J and Station C that drop load in the East Bay.¹ With the recent changes in the CAISO's Planning Standards, utilizing SPS to drop load in this urban area is not an acceptable long-term mitigation for either category B or C contingencies. Given this change and the issues described above, BAMx recommends that the next planning cycle include an in-depth review of the East Bay transmission system and the development of a long-term plan that meets the new CAISO Planning Standards as well as identifies a long-term plan to phase out the reliance on the Oakland CTs.</p>	<p>The ISO will continue to monitor the East Bay area in the next planning cycles. In the near-term the ISO will continued reliance on the existing SPS as evaluation continue for potential transmission planning needs and long-term solutions for this area.</p>

No	Comment Submitted	ISO Response
2	Bay Area Municipal Transmission group (BAMx) Submitted by: Robert Jenkins, Barry Flynn and Pushkar Wagle	
2a	<p>General Comments High Voltage Transmission Access Charge Estimating Model BAMx supports the CAISO's efforts to make available a High Voltage TAC model along with the draft Transmission Plan in January 2015. BAMx encourages the CAISO to post the model and related documentation, so that Stakeholders can use the model and potentially prepare sensitivity analysis of the future HV TAC charge impact of the projects under consideration in the 2014-15 Transmission Planning Process (TPP).</p>	<p>Each year, the ISO posts the model used in the previous year and conducts a stakeholder call to gain stakeholder feedback for the next year's model. The models are available at: http://www.aiso.com/Pages/documentsbygroup.aspx?GroupID=7A2CFF1E-E340-4D46-8F39-33398E100AE7</p> <p>The data for each year's model is developed early in the second year of each planning cycle, when the PTOs data for the previous year is available.</p>
2b	<p>Imperial Area Deliverability/Southern California Needs BAMx is encouraged by the clarity provided by the CAISO's statement that "the preliminary reliability assessment does not show a residual reliability need in Southern California." This provides an important foundation from which to view reliability improvement proposals in the area. Before any new major transmission import projects are considered based upon enhanced reliability, parties must allow the elements of the current CAISO transmission plan and CPUC's Long Term Procurement Plan to work through their respective processes, including the implementation of the approved transmission projects as well as SCE's and SDG&E's procurement of conventional and preferred resources. This statement also allows the Imperial Area Deliverability issue to be viewed as a separate and distinct issue with a focus on (1) the ability and cost to physically connect new renewable generation in the Imperial Area, and (2) the amount of, and the need for resources in this area to count towards procurement targets along with the consumer costs that would be incurred for the two primary options being consider: (i) Upgrading the transmission system to afford resources in the CAISO Balancing Authority (BA) Full Capacity Deliverability Status (FCDS), or (ii) Reallocating Maximum Import Capability (MIC) from other CAISO interties to the CAISO's interties with the Imperial Irrigation District (IID) to afford resources in the IID BA with system Resource Adequacy (RA) counting rights.</p>	<p>The ISO is continuing to refine the analysis released in August based on comments received, and as we move through the planning process.</p>

<p>2c <i>Need to Perform Sensitivity Analysis for Capacity Benefits for Harry Allen-El Dorado 500 kV project</i></p> <p>During the September 24th Stakeholder meeting, the CAISO indicated that it would estimate capacity cost benefits associated with the Harry Allen-El Dorado 500 kV project (HAE) based on an incremental increase in Path 46 transfer capability and capacity price difference. Although BAMx agrees with the CAISO's proposed concept of calculating the capacity benefits, we believe that CAISO should perform several sensitivity analyses for the calculation of the capacity benefits of <i>Harry Allen-El Dorado</i>, similar to the work that the CAISO plans to perform for the production benefits. Additional capacity benefits sensitivity calculations are reasonable, as such analyses will likely take relatively less effort and time because these calculations do not require the use of resource intensive production cost models and subsequent analysis.</p> <p>In the 2013-14 TPP, the CAISO derived capacity benefits based on the assumptions that California would continue to have a resource adequacy requirement and that Arizona could be the source of contracted capacity to serve California load. Additionally, a key assumption for these savings was that the future cost of capacity in Arizona would be significantly less than the cost in California. BAMx agrees that such a set of conditions is one possible future scenario. However, the CPUC 2012 LTPP suggests that the system planning reserve margin is expected to be in the range of 120% during the 2020-2022 time period.² Although there is a need for greater flexible resources in the outer years in California, it does not mean that there is system resource inadequacy. Therefore, we caution the CAISO against using only a single scenario that assumes California has a resource deficiency in the future.</p> <p>In summary, BAMx requests that the CAISO should explore additional alternative sensitivity scenarios and evaluate their impact on the capacity benefit associated with the candidate transmission projects. Furthermore, the CAISO's capacity benefits calculations performed in the 2013-14 Transmission Plan assumed that the entire capacity benefit would be attributed to CAISO ratepayers. The CAISO's Transmission Economic Assessment Methodology (TEAM), on the contrary, assumes that the capacity benefit is split equally between the buyers and sellers of capacity.</p>	<p>A range of parameters will be considered.</p> <p>The ISO is not aware that the TEAM methodology specifically prescribes an arbitrary splitting of benefits. The ISO has relied on past industry experience to base the assumption that the capacity market is sufficiently liquid such that the reductions in costs are reasonably expected to reach the purchaser. Further, we see this as an evolution of the TEAM methodology that will need to be clarified at some point.</p> <p>We could also note that: The Harry Allen-Eldorado project involves extending the ISO grid further to the east, enabling new resources to connect directly to the ISO controlled grid, which further reduces expectations that new resources in Arizona would retain an above-market premium.</p>
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	<p>BAMx urges the CAISO to perform the <i>Harry Allen-El Dorado</i> capacity value benefit calculations consistent with the CAISO's TEAM methodology and approach.</p>	
<p>2d</p>	<p><i>Preferred Resource Alternatives to Transmission or Conventional Generation Methodology</i></p> <p>BAMx also supports the efforts to integrate the use of preferred resources into the planning process and structures. During last year's planning cycle, substantial progress was made in identifying the needed characteristics for preferred resources to offset the need for transmission. Sample preferred resource development options provided by SCE were analyzed to determine their impact upon the need for transmission in the South Coast. Stakeholders were told to expect a greater application of the state policy with respect to favoring preferred resources in the 2014 -15 Transmission Plan. Additionally, during the development of the latest revision to the CAISO planning standard, there was continued reference to the fact that restricting the non-consequential loss of load in high density metropolitan areas for level C events did not mean transmission would be needed to prevent the loss of load. There was a specific reference to preferred resources as alternatives to load dropping and new transmission.</p> <p>Some preferred resources are best accounted for through netting against the load modeled in the base cases. In other situations, more explicit modeling of such preferred resources is necessary to understand their role in satisfying local needs and potentially deferring costly upgrades to the transmission system. BAMx, therefore, is supportive of the modeling of demand response and energy efficiency in the SCE and SDG&E systems as well as energy storage in the SCE system. However, such enhanced modeling appears to be focused on the Southern California area impacted by the Once-Through Cooling (OTC) unit retirements and the shutdown of SONGS. Outside of this specific area of recent concern, the modeling enhancements do not appear to be implemented nor was consideration of preferred resources mentioned as among the project alternatives. Hopefully, this perception is incorrect, and we will get a better understanding how such preferred resources have been taken into account later in the process of developing</p>	<p>The approaches being used to explore optimal use of preferred resources is continuing to be refined through the 2014-2015 transmission planning process, and will be documented in the transmission plan. The need for further documentation will be considered after the transmission plan is complete.</p>

	<p>of the 2014-15 Transmission Plan.</p> <p>In order to achieve better uniformity in system modeling and clearer understanding of the potential for preferred resources to address reliability concerns, BAMx requests that the CAISO adopt and publish a standard modeling and identification practice for preferred resources and consider the ability of such resources as an alternative mitigation to transmission proposed in the 2014-15 Transmission Plan.</p>	
<p>2e</p>	<p>CAISO Reliability Assessment Results <u>Local Congestion Management and Greater Bay Area (GBA) Imports</u> The Reliability Assessment identified potential overloads on the Contra Costa-Newark 230 kV lines. These may become more severe if modeling Pittsburg PP off-line lessens the support of Newark from the Pittsburg-Newark 230 kV line. Mitigation of the overload through congestion management by reducing Contra Costa area generation may be a reasonable solution for this issue, but BAMx is concerned that it is unknown how this may impact GBA reliability. The planning base case generally models all major Bay Area dispatchable power plants at or near their maximum capabilities. Therefore, any reductions in generation due to congestion management (or modeling Pittsburg PP off-line) or unplanned increases in load will likely need to be offset through additional GBA imports. Unfortunately the import capability into the GBA is not defined. The CAISO's Local Capacity Requirement studies define local needs based upon the planning assumptions, but do not provide insights into the ability of the system to accommodate changes such as the Pittsburg PP and Oakland CTs being shut down or the need to reduce Contra Costa Area generation during summer peak conditions for congestion management. To better understand the flexibility of the system to accommodate such changes, BAMx recommends that the CAISO identify the import capability of the GBA and the margin available to accommodate changes such as those described above.</p>	<p>The CAISO will continue to monitor the reliability needs of the area based upon assumptions of generation retirements, repowering or development in the planning assessments. The ISO is also conducting long-term local capacity studies in the 2014-2015 planning cycle to further assess these issues along with economic assessment if there is significant congestion on the system.</p>

<p>2f</p>	<p>PTO Request Window Project Applications <u>San Diego Gas and Electric (SDG&E) Valley Inland Power Link</u> SDG&E has proposed the Valley Inland Power Link, a 1500 MW HVAC or HVDC transmission line to strengthen the connection between SCE and SDG&E, at an estimated cost of \$1.2 Billion to \$4.4 Billion. As noted above, the CAISO's reliability assessment does not show a residual reliability need in Southern California. Furthermore, the justification presented by SDG&E (meet reactive margins, replace inertia and dynamic reactive capability, renewable integration, reduce the risk of voltage collapse and improved voltage control) is inadequate to merit any serious consideration of approval of such a large expenditure in this planning cycle. Despite the CAISO's findings to the contrary, if these are long-term issues on the SDG&E system, there are much lower cost methods of improving reactive margin and voltage control that should be considered first.³ BAMx recommends that this proposal be rejected as both pre-mature and lacking sufficient consideration of lower cost alternatives.</p>	<p>The ISO will consider the SDG&E proposal in light of the identified needs, and in considering other potential alternatives.</p>
<p>2g</p>	<p><u>Valley Electric Area (VEA) Nevada West Connect 230 kV New Line</u> Similar to the last TPP cycle, the VEA-proposed Nevada West Connect 230 kV line lacks sufficient justification for such a major transmission expansion. From a reliability perspective, the CAISO assessment identified much lower cost solutions to the identified forecast reliability deficiencies. Such a massive transmission project is certainly not justified to address voltage issues on VEA's remote 10 MW peak load in the Fish Lake area.⁴ As for enhancing access to renewable energy projects to export beyond the VEA system, this must be measured against the renewable resource portfolios provided by the CEC and the CPUC for inclusion in the TPP. Also, the proposal is incomplete as the proposed project, though already very costly, does not address how the potential renewable energy would move beyond Inyo or Eldorado Substations, both of which already have identified renewable energy potential in excess of the planned transmission capacity.</p>	<p>The ISO will review the proposal and take these comments into consideration.</p>

<p>2h</p>	<p><u>Pacific Gas and Electric (PG&E) Le Grand-Chowchilla-Dairyland 115 kV Loop (May 2022)</u></p> <p>PG&E has proposed looping a relatively nearby (2 miles away) 115 kV line into Chowchilla to address near-term voltage issues and long term (beyond the planning horizon) thermal loading issues. While such a looping of an existing circuit into an existing substation would normally be a promising solution, the identified cost of \$25 million to \$40 million reduces its appeal. We suspect that most of this cost is associated with reconfiguring the current Chowchilla minimal two breaker design to a six element ring bus. (refer to one-line diagram in comment matrix)</p> <p>One of the issues associated with the system performance at Chowchilla is that the loss of the Le Grand-Chowchilla 115 kV line, the primary supply for the area, also results in the loss of local generation due to the system configuration. The 2024 summer peak base case models the combined Chowchilla CG and II generation at 57.4 MW. This local generation also provides substantial voltage support. The contingency for the loss of Le Grand to Chowchilla circuit also takes out Chowchilla Co Generator. We believe that closing the normally open switch 155 and opening the normally closed switch 165 solves any thermal or voltage issues identified in the PG&E's request window presentation during the September 25th Stakeholder meeting (See the figure above).⁵</p> <p>The installation of four steps of 10 MVAR capacitors was identified as an alternative to address the near term voltage issues. In the event that local voltage support is needed, the cost of this element should be identified as well as whether placement is possible in a manner that does not necessitate reconfiguring Chowchilla Substation. In the event that the CAISO does approve the proposed 115 kV loop into Chowchilla, the need for the previously approved LeGrand-Chowchilla 115 kV should be revisited.⁶ The October 1, 2014, PG&E Quarterly Status Report indicates this project is still in the engineering phase.</p> <p>Scenarios should be considered to explore stand-alone preferred resources or a combination of preferred resources and shunt capacitors to eliminate both voltage and thermal loading issues.</p>	<p>The CAISO is continuing to assess the potential mitigation plans for this area.</p>
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<p>2i <u>PG&E Semitropic-Wasco-Famoso-Kern Oil-Kern 70 kV Voltage Conversion (May 2022)</u></p> <p>This project would convert 45 miles of existing 70 kV circuit to 115 kV operation which, along with other associated upgrades, would cost \$85 million to \$125 million. The PG&E presentation indicates that this project is proposed to address the following four Category B contingency overloads.</p> <ol style="list-style-type: none"> 1. Lerdo – Kern Oil – 7th Standard 115 kV Line 2. Kern – Live Oak 115 kV Line 3. Kern Oil – Witco 115 kV Line 4. Live Oak – Kern Oil 115 kV Line <p>The Reliability Assessment results indicate that some of these issues will be mitigated by the approved Wheeler Ridge Junction Station and Kern PP 115 kV Area Reinforcement Projects. The remaining overloads involve the loss of the Kern Oil-Witco 115 kV circuit (though the Category B overload of this circuit identified above does not appear in the assessment results). Therefore a more economic mitigation plan could include:</p> <ol style="list-style-type: none"> 1. Removing the ties and restoring the Kern Oil - Kern Power to double circuit operation from Kern Oil to Witco. 2. Installing 115 kV line termination each at Kern Oil and Witco. 3. In the event there would be a capacity issue associated with the existing conductor on this line, reconductoring could be considered for this short segment. <p>In the event that converting the 70 kV lines to 115 kV operation is still an option being considered rather than the above, it may be possible to reduce the project scope by:</p> <ol style="list-style-type: none"> 1. Converting and reconductoring the 70 kV line sections from Semitropic to Famoso and from Kern Oil to Lerdo. Leave the 70 kV line section between Famoso and Lerdo open and idle. 2. Installing 115 kV line terminations, in either a sectionalized bus or double bus configuration, at Famoso and Lerdo Substations to terminate the converted Semitropic- Famoso and Kern Oil -Lerdo 70 kV line sections, respectively. <p>As for other elements of the proposed solution, consideration as to whether to no longer serve some customers in a radial configuration should be</p>	<p>This area within Kern is an area with potential for increased load growth and continuing customer load interconnection requests. In addition, there are a number of QF generators located within the area that could potentially retire in the planning horizon. The ISO is continuing to assess the potential mitigation plans for this area.</p>
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	<p>based upon a benefit-to-cost ratio (BCR) analysis as described in the CAISO Planning Standards.</p> <p>The justification for converting the three 115 kV stations to a breaker-and-a-half (BAAH) configuration is not stated and is somewhat surprising for stations with lower customer densities such as these. The cost of converting these 115 kV stations to BAAH configurations should be separately evaluated and if being justified based upon reliability, should also be subject to a BCR analysis.</p>	
2j	<p><u>PG&E Panoche-Oro Loma 115 kV Reconductoring Project (May 2022)</u> This project would reductor 17 miles of 115 kV line between Panoche Junction and Oro Loma Substation at an estimated cost of \$30 million to \$45 million. This appears to be due to the strength of Panoche with respect to Wilson, thereby causing a strong flow on the two 115 kV cross-valley circuits. The loss of the Panoche-Mendota 115 kV redirects heavy flows onto the Panoche-Oro Loma 115 kV line.</p> <p>BAMx did a preliminary study of an alternative project that installs a series reactor on the Panoche to Oro Loma 115kV circuit as a means to avoid the overload. The reactor would limit the flow on the 115kV circuit. We believe that an appropriate sized reactor would solve the thermal overload and would not cause any voltage violations in the area. We encourage the CAISO to study this alternative.</p>	The ISO is continuing to assess the potential mitigation plans for this area.

No	Comment Submitted	ISO Response
3	<p>California Energy Storage Alliance (CESA) Submitted by: Mark Higgins</p>	
3a	<p>CESA's comments are limited to the issue of non-wires alternatives in the 2014-2015 TPP.</p> <p>CESA notes that the ISO committed in the 2014-2015 TPP Study Plan to evaluating non-wires alternatives throughout the ISO footprint. Specifically, the ISO stated the following¹:</p> <p>In the current transmission planning cycle, the ISO plans to continue the preferred resource analysis in the LA Basin and San Diego area as well as other parts of the ISO controlled grid to refine the evaluation of effectiveness of preferred resources based on their particular characteristics. The preferred resource studies are intended to supplement the main reliability studies and will focus on those areas where preferred resources are identified as potential solution to reliability issues. As such, the assumptions in the preferred resources study with regard to preferred resources, peak demand levels, conventional generation, etc. will be the same as the assumptions in the reliability assessment studies described in Section 4. However, unlike the main reliability studies, the preferred resource studies will take into account the specific characteristics of the preferred resources. In addition to summer peak load conditions the studies may also consider peak load conditions during other seasons.</p> <p>In addition, the ISO is working with the utilities, and intends to consult with industry through the course of the summer, to establish the characteristics that demand response programs and storage need in order to be viable transmission mitigations. The ISO will work with the utilities to identify those programs that have the appropriate characteristics such that they can be considered when alternatives are developed and compared once the study results testing system reliability have been completed, and options are being explored.</p> <p>As indicated above and elsewhere in this study plan, the ISO will be considering the applicability of the existing demand response within the Reliability Assessment as potential mitigations to transmission constraints.</p>	<p>Since the development of the study plan, and as indicated at the September stakeholder session, the ISO has reviewed the existing methodology, and concluded that further subjective refinement of the generic suite of preferred resources forming the basis of the methodology would not be practical or effective until more detailed information is available about the types of preferred resource options being brought forward in existing procurement processes. Instead, efforts were focused on testing the resources provided by the market into the utility procurement processes for preferred resources.</p> <p>Also, the ISO is exploring other methods to examine benefits in other geographic areas in this transmission planning process. This will also rely on the preferred resources proposed as alternatives in response to the identified needs into the ISO consultation process, and input received in this consultation process about particular areas of interest.</p> <p>The experience to date has highlighted the broader range of issues that need to be considered in applying preferred resources – especially use-limited resources such as energy storage and demand response – in order to provide effective alternatives to conventional solutions. These include, for example, consideration of the various uses preferred resources may be put to, and to what extent, if any, those uses conflict with the preferred resources also functioning as a local capacity resource.</p> <p>They also include consideration of the term of preferred resources if called upon to defer, but not replace the need for conventional alternatives – and the framework that should be applied in considering the value of the deferral versus any ongoing obligations to continue to maintain the preferred resources.</p> <p>Lastly, to this point in time, the ISO has examined preferred resources on a case by case basis to alleviate specific reliability issues where there is the need to take action – the question of a more generalized (and presumably averaged) approach where a need has not yet been identified but may emerge in the future may also warrant consideration.</p>

No	Comment Submitted	ISO Response
	<p>Further, as indicated in section 4.11, ISO will also incorporate incremental uncommitted energy savings in the forecast utilized in the studies. Within the RPS Transmission planning assessment, the ISO will be assessing the High Distributed Generation scenario reflecting grid-connected distributed generation provided by the CPUC, and further notes that the CEC demand forecast accounts for “behind the meter” distribution connected generation.</p> <p>CESA is unaware of the ISO conducting industry consultation promised by the ISO ‘through the course of the summer’ the on the topic of DR/storage characteristics needed to be viable transmission mitigations. CESA therefore encourages the ISO to engage in the promised industry consultation. In addition, CESA urges the ISO to adhere to its commitment to consider energy storage with the appropriate characteristics as an alternative to transmission solutions, including not just reliability solutions, but also for economic and policy driven transmission solutions.</p> <p>As the ISO is aware, energy storage has the added benefit over a transmission solution of being able to provide multiple functions (both market and rate-based). CESA’s default assumption, as of right now, is that storage providing any type of market service would need to be exclusively contracted through utility competitive solicitations and receive CPUC approval. While CESA believes that FERC made clear that such hybrid assets should be able to be partially rate based, CESA recognizes the ISO takes the position that this is not currently possible. As an interim solution, CESA urges the ISO to provide an information-only assessment in the TPP that evaluates energy storage projects as either (a) part of the system resource portfolio – or (b) in the ISO generation queue (which is perhaps more valuable to developers), for reliability, economic, and policy benefits they could provide to the ISO grid. This information could then be used as an additional input generators could provide when bidding into the utilities’ competitive solicitations to help them evaluate the range of benefits that any</p>	<p>Regarding the suggestion put forward of sharing the financial benefits of where storage (or other preferred resources) may provide value on an informational basis, we note that each year’s transmission plan identifies these areas where reinforcement may be necessary in the future but the reasonable timelines to develop conventional alternatives do not require immediate action. The ISO expects that developers interested in the suggested approach have been reviewing those areas and highlighting potential benefits in their proposals to utilities.</p> <p>The above issues will be further discussed in the transmission planning process, and may necessitate a separate stakeholder consultation initiative to address.</p>

No	Comment Submitted	ISO Response
	<p>specific project could provide. This has the added benefit of providing what would effectively be a 'free' transmission benefit to the ISO-controlled grid if such project was then to be procured by a utility. The ISO could then follow its existing procedures to follow up on such projects to ensure they move forward and can actually deliver such benefits.</p> <p>Again, CESA appreciates the opportunity to comment on the 2014-2015 TPP stakeholder meeting, and looks forward to continued collaboration with the ISO to ensure that non-wires alternatives are comprehensively, fairly and accurately assessed in the annual TPP.</p>	

No	Comment Submitted	ISO Response
4	California Public Utilities Commission (CPUC) Submitted by: Keith White	
4a	<p>1. The San Francisco Peninsula Extreme Event Study Should Go Beyond “Qualitative” Assessment of the Justification of the Proposed Moraga-Potrero Transmission Project to Provide Semi-Quantitative Insights into Risks (e.g., Relative to Other Kinds of Risks) and Mitigation Benefits (e.g., for Moraga- Potrero vs. Other Mitigations), with Sufficient Opportunity for Review and to Address Comments Before any Action is Taken Based on Recommendations.</p> <p><i>If certain comments regarding the San Francisco Peninsula Extreme Event Study are deemed ineligible for posting on the public website, then CPUC Staff request that these comments be redacted so that the remaining CPUC Staff comments can be posted on the public website, with the full comments posted on the secure website.</i></p> <p>The San Francisco Peninsula Extreme Event Study is described as filtering 86 seismic scenarios for Northern California down to 16 scenarios around the San Francisco Bay Area, then down to 4 primary study scenarios with 2-4 sensitivity cases for each primary scenario. The final study report and associated stakeholder meeting should clarify what range and types (e.g., events, magnitudes, probabilities locations) of risks are thus <i>included versus not included</i> (filtered out of) the detailed analysis of seismic risks and risk mitigation - - clarifying what was analyzed versus what was not analyzed. There should also be clarification of how event magnitudes, associated impacts and <i>event probabilities</i> were factored into the filtering process to select scenarios and sensitivities for study. This filtering process should emphasize not only the vulnerability of existing infrastructure, loads and critical services to seismic events, but also the vulnerability of <i>potential mitigation measures</i> such as the Moraga-Potrero transmission line.</p> <p>Documents from the September 24 stakeholder meeting state that the study will “consider economic assessment as one factor recognizing</p>	<p>The ISO is continuing to assess the risk and potential benefit of transmission reinforcement to the San Francisco Peninsula based upon the Methodology that was developed and provided to stakeholders for comment. The ISO will provide for stakeholders the results of the analysis of system performance of the San Francisco Peninsula transmission system for the identified seismic scenarios along with the load serving capabilities of the system with and without the identified potential mitigation. The ISO will use this information to assess the potential benefits that the mitigation may provide to the area following the extreme event scenarios assessed. The ISO will continue to clarify the outage conditions assessed for each of the extreme event scenario with consistent use of terminology.</p>

No	Comment Submitted	ISO Response
	<p>shortcomings in applying[ing] an economic assessment in the extreme event case.” There should be clear identification of which <i>other factors</i> are combined with economic assessment, and <i>how</i>, to produce an overall assessment.</p> <p>In San Francisco Peninsula Extreme Event Study presentations, system contingencies are mentioned repeatedly in contexts that are not clear and should be clarified. For example:</p> <ul style="list-style-type: none"> - “...system <i>contingencies</i> for the interrupted load”, - “...event impact...on the <i>contingencies</i>” - “.....estimate length of outage based on....<i>contingency availability...</i>” - Regarding load serving capability assessment in a flowchart: “Determine available <i>contingencies</i> for lost load” and “determine <i>contingency capacity</i>” <p>It appears that in these varied contexts <i>contingency</i> may refer to outage or damage experienced by particular electric infrastructure components that could result from particular identified and studied seismic events, in turn resulting in particular load loss, perhaps characterized by magnitude, location, type of load, time to restore and ability of potentially damaged load to actually receive electric service. “Contingency” is central to the study methodology, but its definition and application within that methodology needs to be clarified.</p> <p>Finally, the CAISO should ensure that stakeholders have sufficient opportunity to review the San Francisco Peninsula Extreme Event Study results and recommendations before the study is discussed at a future stakeholder meeting. After that, there should be reasoned response to stakeholder comments and concerns <i>before</i> any action is taken based on recommendations.</p>	
4b	<p>2. Important Differences Between CAISO and PTO Reliability Study Assumptions (and the Implications) Should be Clearly Identified, and Major LA Basin, and San Diego Reliability Transmission Projects Such as the</p>	<p>The ISO study assumptions are documented in the ISO planning process study plan. The participation transmission owners are encouraged to follow the assumptions in the ISO study plan, and to</p>

No	Comment Submitted	ISO Response
	<p><i>SDG&E-Proposed Valley Inland Power Link Should be Assessed Within the Broader Context of Planning Assumptions and Options Such as Established via CAISO, CPUC and CEC Processes.</i></p> <p>In several TPP planning cycles, differences between reliability transmission needs identified by the CAISO versus by a PTO have been attributed at least in part to different study assumptions. Particularly in the LA Basin-San Diego area, the interplay among major uncertainties, alternative planning scenarios, and a diverse mix of solutions creates a challenging situation to assess. Discussion and understanding are hindered when differences among studies regarding key assumptions are unclear. Thus, the CAISO and PTOs should make such differences clear to stakeholders. For example, there might be different assumptions regarding loads, regarding the magnitudes, locations or performance of demand side measures, and regarding characteristics and locations of both preferred and conventional resources.</p> <p>Furthermore, any major reliability transmission project such as the SDG&E-proposed Inland Power Link should be assessed within the broader set of planning uncertainties and potential solutions applicable to the LA Basin-San Diego area, using clearly identified planning assumptions such as established through CAISO, CPUC and CEC processes. This particular proposed transmission project might be a candidate for consideration within such a broader planning context, which should include careful consideration of the environmental consequences and feasibility of potential solutions.</p>	<p>identify any assumptions which deviate from the ISO process. The ISO does not rely on any PTO studies which do not follow the ISO planning process assumptions.</p> <p>The ISO's planning analysis is based on the study assumptions set out in each year's study plan, vetted with stakeholders through public consultation, and also relying on input from state agencies. The PTO studies, conducted as part of their compliance under NERC functional model responsibilities are based on each utility's perspectives and may not agree. This additional framework for assessing system performance is useful in testing peripheral issues and emerging concerns. However, if the ISO recommends mitigation of an issue as a result of the PTO analysis that is not also reflected in ISO analysis, the ISO will explain the differences in assumptions relating to that issue.</p>

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4c	<p>3. The Harry Allen-Eldorado 500 kV Project Evaluation Should Distinguish Between Future Need for (and Value of) Local Capacity Versus Flexible Capacity Versus any Residual Need for System Capacity, Along with the Ability of this Transmission Project to Deliver Each Kind of Capacity.</p> <p>In 2013-2014 TPP studies of the Delaney-Colorado River and Harry Allen-Eldorado transmission projects, a substantial portion of the estimated benefits came from cost savings for obtaining system Resource Adequacy (RA) capacity from out of state via the transmission line rather than from within California. This depends in part on the deliverability and cost of the out-of-state capacity, including the extent of any out-of-state capacity surplus. However, a factor not addressed that could affect capacity import benefits is the future in-state need for <i>local</i> versus <i>flexible</i> versus <i>residual (system)</i> capacity, and the extent to which these different needs would or could be met by particular kinds of in-state resources, including preferred and local resources, versus out of-state resources. This affects the need for and value of capacity delivered over an out-of-state or interstate transmission line proposed for incorporation (and cost recovery) within the CAISO controlled grid, and should be addressed in the Harry Allen-Eldorado study. The ability of the proposed project to enhance delivery and utilization of flexible capacity, including via an Energy Imbalance Market, also appears to be relevant.</p> <p>Appropriate treatment of different kinds of capacity and capacity benefits should be documented as part of study results and should be fully reflected in overall Harry Allen-Eldorado benefits assessment, and in consideration of the project for approval.</p>	<p>The comment will be considered further in the documentation of the project analysis. The Harry Allen-Eldorado project would be expected to create deliverability for both system and flexibility capacity. The amount of flexible local capacity that will be lost from the retirement of the OTC generation, SONGS, and other generation retirements in the next few years is expected to be replaced at a small fraction of the total amount to be lost.</p> <p>The ISO's methodology does enable consideration of a broad range of sources of economic value. Both the analysis of the Harry Allen-Eldorado project and the Delaney-Colorado River project take into account system capacity benefits. However, neither project terminates in local capacity areas, and do not provide local capacity benefits.</p>

No	Comment Submitted	ISO Response
5	LS Power Development, LLC Submitted by: Sandeep Arora	
5a	<p>(1) San Francisco Extreme Contingency Analysis:</p> <p>As part of 2013/14 Transmission Plan, CAISO identified that there may be a need to build additional transmission in SF Peninsula area to mitigate the extreme contingency risk for the area. Further, CAISO concluded that "...it is difficult to determine the probability of event, extent of damage or the restoration times for the extreme events and the interdependencies of the event or consequences. With this it is difficult to develop detailed and precise quantitative analysis. In light of this, one approach that the ISO is considering is to look at the relative likelihood of different scenarios occurring to determine a relative qualitative assessment of the risks of operating the system as it is, with the adequate restoration plans, or with the addition of a major capital project to reduce the risk of impact or exposure to not being able to supply loads in the area for potentially long duration of time following a seismic event..."</p> <p>LS Power agrees with CAISO and completely understands the complexity of selecting an option to help mitigate risks posed by extreme events. We agree that further analysis of the reliability risks and the benefits that potential reinforcement options would have in reducing those risks is needed. LS Power understands that currently CAISO and Quanta Technology, LLC are performing "Risk Analysis", the three main components of which will be evaluating Infrastructure Integrity, Seismic event Scenario Analysis and Load Serving Capability impacts. LS Power further understands that if new transmission need is identified, then CAISO is only considering the Moraga – Potrero 230 kV line as the reinforcement option to be further analyzed. This is the only line that is being included in the analysis currently being pursued by CAISO and Quanta. While we agree with the CAISO approach in performing this further analysis, but we respectfully disagree that only Moraga – Potrero 230 kV line should be included in this analysis. While previous reliability analysis may have led CAISO to conclude that Moraga – Potrero is the preferred alternative, we believe that this conclusion should only be drawn only after all possible transmission alternatives are included as part of the ongoing scenario analysis. Since most transmission alternatives more or less help resolve the same reliability concerns, the real test as to which alternative performs better should come from the Risk Analysis. All transmission alternatives should be tested against the all components identified in the Methodology for Risk Analysis developed by CAISO & Quanta. As several</p>	<p>The previous analysis performed in the earlier planning cycle studied the relative effectiveness of various mitigations, to rule out the less effective solutions overall.</p> <p>The current analysis is focusing on the value provided by the overall best mitigation, and the relevance of the risk analysis to other alternatives will be taken into account. However, given the consideration of alternatives performed previously, it is not practical to perform the detailed risk analysis now underway on alternatives that have already been filtered out.</p>

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	<p>parties1 previously commented2 to CAISO during the process of finalizing Draft Transmission Plan for 2013/14 Planning cycle, a comprehensive comparison of all options should be performed and all options should be compared against reliability, diversity, and odds of survivability under various seismic scenarios, to see what is expected to provide best benefits. LS Power supports this and recommends that CAISO should not prematurely conclude which alternative is the best before this further analysis is complete.</p>	
5b	<p>(2) PG&E Bulk System Reliability issues: CAISO staff presented several reliability issues for the Bulk system in the PG&E area. These issues are mainly thermal overloads of several 500 kV transmission lines and transformers for several Category B and C contingencies. LS Power understands that CAISO staff will be looking into solutions to address these issues and use of Operating guides will be a solution CAISO may implement in the near term. However in the long term, a new transmission upgrade to address these issues will likely be needed. As CAISO prepares its final recommendations for addressing these issues, it should consider the “South West Intertie Project North”, or SWIP North as a long term transmission solution. SWIP North is comprised of a 500 kV transmission line from Midpoint substation to Robinson Summit substation. This project was previously submitted by LS Power in the 2012/13 Transmission Planning request window. Also, as CAISO is likely aware, LS Power in partnership with NV Energy, recently built another 500 kV transmission project called the ONLINE project (“One Nevada Transmission Line”), which is a new 500 kV line from Robinson Summit substation to Harry Allen substation. This line was brought in service at the beginning of this year. This line complements SWIP North, as the two provide a “major” parallel path to several of CAISO’s major paths such as PDCI, Path 26 & Pacific AC Intertie interfaces. Power flow studies show that SWIP North (in conjunction with the operational ONLINE) significantly offset flows on these interfaces, including reduction of about 700 MW for the Pacific AC Intertie. LS Power studied the effectiveness of SWIP North on addressing the Bulk system issues identified by CAISO staff. The studies utilized 2019 Spring Peak power flow basecase from CAISO Market Participant Portal and contingency files posted there. SWIP North was modelled in the basecase and “Post Transient” analysis was performed on the two cases (with and without SWIP North). The results for CAISO basecase were benchmarked to ensure accuracy of the analysis. These are reported below in Table 1 (See LS Power comments for Table). Further, Table 1 shows the</p>	<p>The ISO reviewed the project submission for the SWIP North Transmission project and agree that this project may reduce loading on the Pacific AC Intertie; however it still doesn’t completely mitigate all overloads observed in the 2019 Spring case with the 500 kV double outages. The ISO reliability assessment did not identify any reliability constraints when operating within the COI nomograms. With this it is unclear whether the project benefits justify the project cost compared with operating within COI seasonal nomograms. Within the economic assessment, depending upon the potential congestion on the Pacific AC Intertie further economic assessment may be considered.</p>

No	Comment Submitted	ISO Response
	<p>results for the case with SWIP North modeled. As is evident from the Table, SWIP North was able to alleviate and resolve several Category B and C overloads.</p> <p>In addition to benefits outlined above, SWIP North also offers several additional benefits such as it will provide more transmission capacity to allow market participants in CAISO and Pacific Corp to further enhance the benefits of the Energy Imbalance Markets and will also allow CAISO access to cheaper flexible capacity from out of state resources, which is what CAISO needs for Renewable Integration.</p> <p>We believe that SWIP North can play a major role in resolving the system issues in Northern California. SWIP North would also provide other significant benefits to CAISO's system that should be analyzed and quantified as part of the 2014/15 Transmission Plan. LS Power stands ready to assist CAISO in this process.</p>	

No	Comment Submitted	ISO Response
6	Pacific Gas & Electric (PG&E) Submitted by: Justin Bieber and Marco Rios	
6a	<p>San Francisco Peninsula, Extreme Event Assessment</p> <p>PG&E is very supportive of the work the CAISO has done thus far on the Extreme Event Assessment for the San Francisco Peninsula. With the recent approval of the San Francisco Peninsula Extreme Event Reliability Standard, the CAISO has rightly acknowledged the unique characteristics on the San Francisco Peninsula. The urban load center, geography, system configuration, and potential for challenging restoration times justify the consideration for a mitigating transmission solution to address the reliability concerns on the Peninsula.</p> <p>PG&E commends the CAISO's efforts engaging Quanta to perform an independent Extreme Event risk assessment on the reliability of the grid on the San Francisco Peninsula. The methodology for the risk assessment examining seismic event studies, probabilities, restoration plans, equipment and design standards, electric loads in SF Peninsula, equipment location and geologic faults will provide a comprehensive analysis of the risks and benefits for the CAISO to make an informed decision about the need for a mitigating transmission solution.</p> <p>PG&E continues to support the CAISO's conclusion in the 2013-2014 TPP that although additional analysis was needed at that time, the addition of a new 230 kV transmission line from Moraga to Potrero is the preferred mitigation solution for San Francisco Peninsula reliability. PG&E believes that the Extreme Event Assessment in the 2014-2015 TPP will be a proper conclusion to the previous years' analysis focusing on category D extreme contingencies, and looks forward to a final determination of need when the final 2014-2015 TPP is considered in March, 2015.</p>	<p>The ISO is continuing to assess the risk and potential benefits of transmission reinforcement to the San Francisco Peninsula area under extreme event conditions.</p>

No	Comment Submitted	ISO Response
7	Silicon Valley Power (SVP) Submitted by: Ken Kohtz	
7a	<p>Donald Von Raesfeld (DVR) Power Plant Modeling Assumptions</p> <p>It has come to our attention that the CAISO summer peak base cases have modeled the SVP DVR plant at full output in the reliability studies for the South Bay area. While modeling the plant at full production may be appropriate in cases where the ability of the system to accommodate such operation is under study, SVP believes that the DVR plant should not be modeled on-line when assessing the reliability needs of the transmission system. SVP dispatches the plant based upon its resource portfolio needs and may not be dispatching the plant during times of high local load.</p> <p>It appears that the plant was modeled off-line in the summer peak reliability bases cases until the previous planning cycle, when it was modeled on-line at a reduced output."1 In recent studies with PG&E concerning potential internal changes to the SVP system, the system was modeled and reliability upgrades identified based upon maintaining sufficient capacity of the transmission system to accommodate non-operation of this plant.</p> <p>SVP is not clear whether it is possible to adjust this planning assumption at this stage of the planning cycle. However SVP requests that in future planning cycles that the reliability of the transmission system be designed to accommodate the full range of DVR operation, including being off-line under non-emergency conditions.</p>	<p>These units were modeled on-line in the summer peak WECC base case that were identified in the CAISO 2014-2015 study plan for the system conditions to be assessed. In future planning cycles the ISO will continue to assess the assumptions in the development of the study plans.</p>

No	Comment Submitted	ISO Response
8	Transmission Agency of Northern California (TANC) Submitted by: Dave Larsen	
8a	<p>TANC's primary concerns regarding these studies are the negative impacts which the loss of the remedial actions contracted for by PG&E with the California Department of Water Resources (CDWR), and which are currently included in the PG&E remedial action scheme (RAS), would have on the ability to import power over the COI of which the COTP is a major component. The CDWR RAS participation provides for dropping generation and pump loads of the CDWR associated with various double-line outages on PG&E's 500-kV transmission network between the Malin and Midway substations. Studies by the CAISO as part of the 2014-2015 TPP have indicated that removal of CDWR's participation in the PG&E RAS could reduce the amounts of power that could be delivered over the COI; however, the amounts of such reductions have not yet been fully studied or identified by the CAISO.</p> <p>Specifically, the TPP studies have noted a number of issues due to Category B and Category C outages of Pacific AC Intertie (PACI) 500-kV lines if the CDWR generation at Hyatt and Thermalito and the CDWR pump loads are not tripped via RAS. Table 1 presents information derived from the CAISO reliability study results on the critical outages, the facilities impacted by each outage, and the potential mitigation solutions identified by the CAISO.</p> <p>As shown in Table 1 (See TANC's comments for Table):</p> <ul style="list-style-type: none"> • A total of six facility overloads were noted in the CAISO studies for which the only "potential" solution was to reduce COI transfers. • Five other facility overloads were noted in the CAISO studies for which one of the potential solutions was to reduce COI transfers. 	<p>The ISO is currently studying mitigation measures for the overloads with the Table Mountain-South DLO with the CDWR RAS no longer available. The ISO is developing nomograms to determine the required reduction in COI import and other mitigation measures, such as congestion management. In addition the ISO will continue to assess potential congestion in the economic assessment of the 2014-2015 planning cycle.</p>
8b	<p>In Appendix B of its final 2013-2014 Transmission Plan the CAISO presented information on estimated COI flow limits for various combinations of Northern California hydro generation, CDWR generation, Colusa generation, and Hatchet Ridge generation for the Table Mountain-South DLO and no DWR RAS. This information indicated that the COI flows would be limited to 4,500 MW due to overloads of about 6.5% on the Eight Mile-Lodi line when:</p> <ul style="list-style-type: none"> • The northern California hydro was at 80%, • CDWR generation was at 710 MW, • Colusa generation was at 690 MW, and • Hatchet Ridge generation was at 103 MW. 	<p>The ISO is currently studying mitigation measures for the overloads with the Table Mountain-South DLO with the CDWR RAS no longer available. 2019 Spring peak case appeared to be the most critical due to the assumptions of high hydro generation in Northern California, high COI flow and not as high load as during the summer peak.</p> <p>The ISO is developing nomograms to determine the required reduction in COI import and other mitigation measures, such as the use of congestion management within the ISO system. In addition the ISO will continue to assess potential congestion in the economic</p>

No	Comment Submitted	ISO Response
	<p>Table 2 (See TANC's comments for Table) summarizes and compares the overloads noted on various facilities in the 2013-2014 TPP studies (for 2018 summer peak conditions) to those noted in the 2014-2015 TPP studies (for 2019 summer and spring peak conditions).</p> <p>As shown in Table 2:</p> <ul style="list-style-type: none"> • The post-contingency overloads noted for the 2019 summer peak case used in the 2014-2015 studies are generally higher than those in the 2018 summer peak case used in the 2013-2014 studies • A number of new or increased overloads are noted in the 2019 spring peak case (relative to the 2019 summer peak case). <p>In that the results for the 2014-2015 studies are more severe than those noted in the 2013-2014 studies TANC is concerned that the degree to which COI transfers would have to be reduced to mitigate the noted overloads will likely be significantly higher than those noted in the CAISO's 2013-2014 TPP studies.</p> <p>The potential mitigation solutions identified by the CAISO do not appear to reflect any in-depth investigation of potential alternatives to the COI path flow limitation or the economic or policy effects of such a remedy. Solutions that do not require reducing COI transfers (such as reconductoring the Round Mountain-Cottonwood #2 and #3 lines and curtailing or tripping generation at Colusa or Hatchet Ridge) could be developed for all of the overloads noted in Table 1; TANC encourages the CAISO and the other pertinent parties to actively assess the viability of such alternatives. TANC urges the CAISO to investigate actions other than limiting the COI transfers to mitigate the system overloads following outages on PG&E's transmission system.</p> <p>Finally, TANC believes that limiting the COI transfers is not an acceptable mitigation since it impacts other transmission systems besides that of the CAISO. Limiting the operational transfer capability of the COI affects not just the CAISO but the Bonneville Power Authority (BPA), who operates the path north of the California border, and those owners of the COTP who are not located within the CAISO BA but are within the Balancing Authority of Northern California (BANC).</p>	<p>assessment of the 2014-2015 planning cycle.</p>